

## **PESTICIDE CERTIFICATION AND PROCEDURES**

**1. REASON FOR ISSUE:** To revise National Cemetery System (NCS) policy on the use of pesticides, formerly contained in M40-2, Chapter 15, Landscaping and General Horticulture, Section 15.07, dated June 1, 1987.

**2. SUMMARY OF CONTENTS/MAJOR CHANGES:** This directive sets forth the policies and responsibilities for pesticide use based on Federal, state and local requirements:

- a. Establishes the responsibilities for all management levels in NCS regarding the use of pesticides.
- b. Provides definitions of commonly used terminology and pesticides.
- c. Outlines standard precautions when handling, applying, storing and disposing of pesticides.
- d. Establishes the requirement that all cemeteries maintain a record of all pesticides applied including the quantity, location, cost and dates applied.

**3. RESPONSIBLE OFFICE:** NCS Technical Support Service (401B), National Cemetery System, 810 Vermont Avenue, NW, Washington, DC 20420, is responsible for the material contained in this directive.

**4. RELATED HANDBOOK:** NCS Handbook 3410, Pesticide Certification and Procedures.

**5. RESCISSIONS:**

- a. M40-2, Chapter 15, Landscaping and General Horticulture, Section 15.07, dated June 1, 1987.
- b. M40-2, Chapter 21, Safety, Section 21.12, dated October 5, 1993.
- c. Interim Issue 40-93-01, to establish guidelines for biological monitoring of cemetery employees who apply pesticides, dated October 5, 1993.

/signed/

**Roger R. Rapp**  
**Acting Director, National Cemetery System**

Distribution: RPC 4019  
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## **PESTICIDE CERTIFICATION AND PROCEDURES**

### **1. PURPOSE**

This directive provides policy, direction and general orientation to all management levels in the National Cemetery System (NCS) on pesticide certification and legal requirements. The statutory authority for this directive is title 38, United States Code, Sections 307, 512 (a), 2400, 2404 (a) and 2404 (b).

### **2. SCOPE**

a. The number of different pesticides available for use vary greatly. Effects on wildlife and the environment are important considerations. New, highly poisonous pesticides require special equipment and safety measures. Pesticide applicators, therefore, must know about safety and proper use. Requirements exist to help protect the general public, the environment and the applicator. Anyone who applies pesticides must demonstrate they know how to use them properly by becoming certified as a pesticide applicator.

b. The statutes that deal with the safe use of pesticides include the Federal Insecticide, Fungicide, and Rodenticide Act and the Occupational Safety and Health Act (OSHA). Regulations dealing with the safe use of pesticides include, but are not limited to, the Code of Federal Regulations, title 40, (Protection of the Environment), part 156 on labelling and Part 171 on certification of pesticide applicators; and title 29 (Labor), part 1910.134 on respiratory protection. All State and local requirements dealing with safe use and application of pesticides also apply to anyone using pesticides within a State.

c. The United States Government, mainly through the Environmental Protection Agency (EPA), has set standards for pesticide handling and use. Some practices which were suggested for safe use in the past are now required by law. These include such areas as record keeping, storage and disposal procedures, filling and mixing methods, etc. All the current standards are designed to help make pesticides safer for people and the environment.

(1) The Federal Insecticide, Fungicide and Rodenticide Act of 1947 (FIFRA), places the burden of proof of acceptability of a product on the manufacturer prior to its being marketed. FIFRA is oriented to protect the user, the consumer, and the public from pesticides, some of which are dangerous and all subject to limitations in application.

(2) The EPA is responsible for pesticide regulatory functions. These responsibilities include the registration of pesticides as required under FIFRA. In addition to requiring registration, the law states that pesticide products must be labeled with ingredients information, toxicity levels and directions for use.

(3) The Federal Environmental Pesticide Act of 1972, as amended, completely revised the FIFRA which has been the basic authority for Federal pesticides regulations since 1947. The Act regulates the use of pesticides including those distributed and used within a single State.

d. Each State has laws governing pesticide use, following EPA guidelines. These laws apply to anyone who wishes to use pesticides within the State's borders. The laws are written to handle pesticide problems which are specific for the particular State. State pesticide laws cannot overrule or conflict with Federal laws. Federal and State laws and regulations apply to any person using pesticides within a State.

(1) Each State has laws governing pesticide use. Federal and State laws and regulations apply to any- one using pesticides within a State.

(2) All persons using and applying pesticides should have an understanding of the law pertaining to pesticide use and application. Registered pesticides will be classified for either general use or restricted

use. A pesticide may be restricted because of its potential for harm to either human health or the environment. Certification of the applicator is accomplished by State programs whose plans are approved by the EPA. The EPA may withdraw approval of a State plan if the program is not maintained or does not comply with the Federal Environmental Pesticide Act.

- e. Each county can also enact its own pesticide regulations.

### 3. POLICY

It is the policy of the NCS to store, handle and apply pesticides, and dispose of pesticide waste in compliance with Federal, State and local laws. It is also the policy of NCS to ensure employee, visitor and environmental safety in carrying out these duties.

- (1) Cemetery staff will handle and apply pesticides only when necessary and in compliance with applicable laws.
- (2) Pesticides will be applied only as directed on labels. A Material Safety Data Sheet (MSDS) should be available to all employees in areas where work is being performed, as required by OSHA. Only pesticides intended to control a specific pest will be used.
- (3) Restricted pesticides should be avoided whenever possible.
- (4) First aid, cleanup equipment and supplies, as well as a facility emergency plan must be available at all times.
- (5) Any person applying pesticides in a national cemetery will be certified or licensed in that State, or under the supervision of a State certified applicator.
- (6) Any person applying pesticides will be knowledgeable in recognizing poison symptoms and in remedies.
- (7) All pesticide storage facilities will be built according to applicable laws and identified with proper symbols.

### 4. RESPONSIBILITIES

a. The **Director, National Cemetery System** will ensure that National Cemetery Area Office (NCAO) Directors enforce State certification requirements necessary for continuation of licensing.

b. **National Cemetery Area Office Directors** will ensure that State requirements are followed in the use of pesticides, e.g., that pesticides are applied under the supervision of a State certified applicator either assigned to a cemetery or to a VA medical center.

c. Each **Cemetery Director** will:

- (1) Ensure that NCS employees who apply pesticides or otherwise use pesticides as part of their job are adequately trained in all aspects of Federal, State and local OSHA laws and regulations that apply to the use and handling of pesticides. Cemetery Directors will also ensure that contractor employees have been adequately trained in the proper use and handling of pesticides.
- (2) Develop emergency plans, as required by EPA and OSHA regulations, addressing procedures which must be followed should a pesticide be released to the environment. Plans will cover all responsibilities of NCS employees and will be made a part of the facility emergency plan.
- (3) Ensure that safe use of pesticides is included in a facility safety program.
- (4) Ensure compliance with VA Circular 00-92-5, "Emergency Planning and Community Right-to-Know Act."

(5) Evaluate, on a regular basis, the use of pesticides to determine if less toxic products may be substituted.

(6) Notify all NCS employees and the local community when pesticides are going to be used. See generally the Superfund Amendments and Reauthorization Act of 1986 (SARA) and the Emergency Planning and Community Right-to-Know Act of 1986.

(7) Select an employee to attend classes and successfully complete written and/or oral tests in order to be classified as a Public Agency Applicator in turf and ornamental plants, or assign an employee to apply pesticides under the supervision of a State certified applicator.

(8) Renew licenses annually by meeting all the requirements outlined by the State.

(9) Maintain a record or log of each application of pesticides by licensee, to be available to NCS and the State on request. The following general information must be recorded:

Name of applicator;  
 Date of application;  
 Type of plant(s), turf, or structure(s) treated and pests controlled;  
 Acreage or number of plants treated;  
 Address of property treated;  
 Common name of pesticide(s) used;  
 Type of equipment used;  
 Time of day of application; and,  
 Wind direction, estimated velocity and weather conditions.

(10) Ensure that the chemicals used in pest control must be registered with the State and applied according to the label instructions and in accordance with the Pesticide Applicators Law and State Regulations.

(11) Ensure that all precautions shall be observed in the handling (use and storage of pesticides so that human or other non-target areas or organisms will not suffer undue injury) so that hazardous environmental contamination does not occur.

(12) Store pesticide material in accordance with State regulations.

(13) Identify pesticides of the organophosphorous and carbamate groups, cholinesterase inhibitors. This identification must be highlighted on the product's MSDS.

(14) Arrange for cholinesterase testing with the servicing medical center. Where the distance to a servicing medical center prohibits support, testing services may be purchased through a contract with a non-VA laboratory.

(a) Provide appropriate Material Safety Data Sheets to physicians providing emergency medical care to an employee experiencing pesticide poisoning symptoms.

(b) Obtain a copy of the "Recognition and Management of Pesticide Poisoning," which may be ordered from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

(15) Establish guidelines for the disposal of pesticide containers and container residue in accordance with Federal, State and local laws. Disposal should conform with Federal regulations.

(16) Provide safety equipment and information on how to handle accidental pesticide spills and medical treatment if applicators are contaminated with hazardous material.

(17) Ensure that training is in effect at the Cemetery to update employee knowledge of current changes.

(18) Apply all pesticides when there are no visitors present and identify treated areas with signage.

(19) Check with the State for a list of chemical-sensitive individuals who may reside near the cemetery; inform them when and what you plan to apply and enter it in the log.

(20) Request the services of a certified pesticide applicator from a VA medical center in the vicinity if there is one available.

NOTE: An alternate to the above may be to contract out for the service. Each person or company engaged, for hire, in the business of lawn and ornamental pest control or fumigation, or in any other service involving the use of pesticides or devices for the control, eradication, mitigation or prevention of pests in or around buildings, lawn, trees and shrubs, must hold a license stating those categories in which they are authorized to do business under these regulations.

(21) Contact, as necessary, NCS Technical Support Service (401B), which is available to assist in advising on pesticide controls and programs and reviewing specifications for contracting.

(22) Ensure that NCS employees and all contractors use appropriate personal protective equipment when applying pesticides at NCS facilities.

(23) Ensure that a respiratory protection program is in effect at the facility and that information is available to NCS employees on when respirators must be used.

(24) Comply with Executive Order (EO) 12856, "Federal Compliance With Right-to-Know Laws and Pollution Prevention Requirements." The EO contains detailed requirements for reporting Toxic Release Inventory (TRI) data to the EPA:

- (a) if more than 25,000 pounds of any individual toxic material is processed or manufactured annually, or
- (b) if more than 10,000 pounds of any individual toxic material is used annually.

NOTE: Process includes repackaging for either on-site use or for shipment off-site and reformulation. Pounds refer to individual toxic chemicals and do not include the non-toxic inert material that makes up much of the volume of pesticides.

## 5. RECORDS AND REPORTS

a. Cemetery Directors will maintain a record of all pesticides applied, quantities, locations, wind velocity and direction, costs and dates. These records shall be available for State inspection and/or reports to Federal and State agencies.

b. A review of the pesticide records will be a regular part of a cemetery inspection.

c. TRI data will be furnished as required by EPA if more than 10,000 pounds of any individual toxic material is used annually or if more than 25,000 pounds of any individual toxic material is processed or manufactured annually. More specific details are referenced in Paragraph 4.c.(24) (a) and (b) above.

## 6. REFERENCES

a. Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), ch. 125, 61 Stat. 163 (1947).

b. Federal Environmental Pesticide Control Act of 1972, Pub. L. No. 92-516, 86 Stat. 973 (codified as amended at 7 U.S.C. § 136, et seq.)

c. VA Circular 00-92-5, Emergency Planning and Community Right-to-Know Act.

- d. Code of Federal Regulations, Title 40, Parts 156 and 171.
- e. Code of Federal Regulations, Title 29, Part 1910.134.
- f. Environmental Protection Agency Publication No. 540988001, "Recognition and Management of Pesticide Poisonings", 1989, 4th Edition.
- g. Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA), Pub. L. No. 99-499, 100 Stat. 1613, also known as the Emergency Planning and Community Right-To-Know Act of 1986, Pub. L. No. 99-499, title III, 100 Stat. 1728 (codified in Title 42, United States Code, section 11001, et seq.)
- h. Exec. Order No. 12,856, Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements, 3 C. F. R. 616 (1994).

## 7. DEFINITIONS

Definitions are contained in NCS Handbook 3410, Pesticide Certification and Procedures, Appendix B.

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- 1. REASON FOR ISSUE:** This handbook establishes National Cemetery System (NCS) procedures for handling, applying, storing and disposing of pesticides, formerly contained in M40-2, Chapter 15, Landscaping and General Horticulture, Section 15.07, dated June 1, 1987.
- 2. SUMMARY OF CONTENTS/MAJOR CHANGES:**
  - a. Outlines standard precautions when handling, applying, storing and disposing of pesticides.
  - b. Provides guidelines on health issues regarding pesticides, including precautions and first aid.
  - c. Provides definitions of commonly used terms and pesticides.
- 3. RESPONSIBLE OFFICE:** NCS Technical Support Service (401B), 810 Vermont Avenue, NW, Washington, DC 20420, is responsible for the material contained in this handbook.
- 4. RELATED DIRECTIVE:** NCS Directive 3410, Pesticide Certification and Procedures.
- 5. RESCISSIONS:**
  - a. M40-2, Chapter 15, Landscaping and General Horticulture, Section 15.07, dated June 1, 1987.
  - b. M40-2, Chapter 21, Safety, Section 21.12, dated October 5, 1993.
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## **PESTICIDE CERTIFICATION AND PROCEDURES**

### **SECTION I -- PRECAUTIONS**

#### **1. LABELS**

a. The label is the key to information about any pesticide. The pesticide label states the most important facts about that particular pesticide for safe and effective use. The information on the label gives not only the directions on how to mix and apply the pesticide, but also offers guidelines for safe handling, storage, and protection of the environment. By law, it must include the following:

Brand name;  
Common name;  
Chemical name;  
Use classification;  
Ingredients (general or restricted);  
Uses of pesticide;  
Directions for use;  
Safety information;  
Signal words (DANGER - POISON, WARNING, CAUTION);  
Net contents;  
EPA registration number;  
Establishment number; and,  
Name and address of manufacturer or registrant.

b. Read the label several times prior to and during use:

First time	Before you buy the pesticide;
Second time	Before you mix the pesticide;
Third time	Before you apply the pesticide;
Fourth time	Before you store the pesticide; and,
Fifth time	Before you dispose of the excess pesticide in the container.

c. The importance of reading the label cannot be stressed too often. The information that appears on the label is put there for the user's information and protection. Do not use the product on any pest or disease other than those listed on the label. Waste chemicals must be stored in accordance with Federal and State requirements prior to disposal.

#### **2. PESTICIDE SAFETY**

a. Pesticides are beneficial when properly used; misused they may be extremely dangerous. Most pesticides are designed to control by killing insects, mites, fungi, weeds, rodents, or other pests. All pesticides should be handled as poisons. Select the safest pesticide formulation whenever there is a choice. Try not to use restricted pesticides. Pesticides have a safety margin when used properly. Normally, illnesses are preventable and are usually caused by misuse of the chemicals. Choosing the correct pesticide to use is one of the most important segments of carrying out an effective pest control program.

b. Control measures should not be undertaken unless the pest is developing into a problem.

c. Purchase only enough for the particular job or for one season, to avoid a storage or disposal problem. Any pesticide used should be currently registered by the EPA and the State Department of Agriculture, and recommended by the Cooperative Extension Service.

- d. Granular type formulations are safer than sprays or dusts because they drift less.
- e. Extreme caution should be used in mixing and handling pesticides. The mixing and loading of pesticides can result in possibilities of exposure, spills, splashes, inhalation, etc.
  - (1) Obtain and wear the proper personal protection equipment, including protective clothing and eye protection, a respirator, if required, and have first aid equipment available.
  - (2) Never work alone when handling dangerous chemicals.
  - (3) Do not spray on a windy day; always make sure that any wind is at your back.
  - (4) Mix chemicals outside on a containment pad or in a well-ventilated area where spills can be contained.
  - (5) Measure all quantities of active ingredients with extreme accuracy.
  - (6) Rinse all containers three times. Pesticide containers and container residual must be disposed of in accordance with local, State and Federal laws.
  - (7) Clean up spilled pesticides immediately. If the pesticide is accidentally spilled on skin, immediately wash off with soap and water. If the pesticide is spilled on clothing, change clothing as soon as possible. Do not store or wash contaminated clothing with other clothing items.
  - (8) Protective gloves should be washed before removing them.
  - (9) Do not smoke, eat, drink or apply cosmetics while handling pesticides.
  - (10) When filling the spray tank do not allow the delivery hose below the highest possible water surface to avoid back-siphoning.
  - (11) Drift must be controlled to protect adjacent properties, wildlife, plants, crops, wells, ponds, humans and pets. Federal laws have placed rigid controls and penalties on applicators for misapplication. If chemicals are permitted to drift off the property and injure another crop or individual the applicator can be liable. Drift is influenced by many factors such as particle size, gravity, spraying pressure, evaporation rate, air movement, humidity and temperature.

### **3. APPLICATION OF PESTICIDES**

- a. Always refer to the label prior to pesticide application. It is necessary to wear protective clothing and personal protection equipment, no matter how uncomfortable it may be. To apply the correct pesticide amount the applicator must have proper equipment in good condition and properly calibrated. The application should be performed at the proper time, using recommended dosages. Take precautions to guard against drift and prevent applications from contaminating streams, ponds, lakes or wells. Do not apply when windy or in strong breezes. If the applicator feels ill when applying a pesticide, work should cease and medical attention should be sought.
- b. No unprotected person may be in an area that is being treated with a pesticide and make sure there is a waiting period for re-entry to the area treated.
- c. Check with the State Department of Agriculture if they have issued a pesticide sensitivity list of people living in the area the applicator is going to treat. If there is a list, these people will have to be informed when you are going to spray, what chemicals you are using and the necessary precautions they can take to prevent being exposed to the spray. This procedure has to be accomplished whether the Cemetery Director contracts out or uses in-house labor.

### **4. PESTICIDE EXPOSURE**

- a. Pesticides can enter the human body to cause poisoning by:

(1) **Oral Exposure** is the most serious exposure because of the rapid internal absorption and possibility of quick death. Generally when a pesticide is taken into the mouth in amounts sufficient to cause serious injury or death, it is consumed either by accident or by intent to commit suicide.

(2) **Dermal Exposure** is absorption through the skin which may occur as a result of a spillage, splash, drift, or with a deposit of residue remaining on the treated site. Individuals with skin problems should avoid other than minimal exposure to pesticides. Skin cuts, abrasions, scratches, and scuffs can be sources of quick absorption. Cover up before exposure. Wear protective clothes to also protect the hair as well as skin about the head and neck from pesticides. Rubber gloves are generally used when handling pesticides. Leather and cotton gloves should never be used because they absorb and retain moisture.

(3) **Respiratory Exposure** is inhalation of sufficient amounts of pesticides that can sometimes cause serious damage to nose, throat and lung tissues. Vapors and extremely fine particles represent a serious potential for respiratory exposure. Pesticide dust, aerosol, fog, smoke and certain mists are a high potential for respiratory exposure. A respiratory device is an important piece of protective equipment to wear when applying toxic pesticides. Several kinds of respiration devices are available to protect applicators. Pesticide applicators need to know what types are available and the hazards they will protect against. The pesticide label should contain information concerning the proper respirator to use for the pesticide you will be applying. No matter how well the respirator is designed and made, unless it is properly cared for and maintained, it may fail to provide protection.



## **SECTION II -- PESTICIDE POISONING AND FIRST AID**

### **1. POISONING EFFECTS AND SYMPTOMS**

a. Prior to establishing any pesticide program, it is necessary to test the blood of individuals involved in the application to establish blood levels and also at the end of the season to make sure that they were not unduly exposed to the chemicals. (See NCS Directive 3410, subparagraphs 4.c.(13) and c.(14).

b. **Organophosphorous Pesticides.** These chemicals are one of the largest group of pesticides presently being used. The group includes insecticides such as Parathion, Malathion, Phorate, Mevinphos, Diazinon, and others. The organophosphorous pesticides can be absorbed dermally, orally, or through respiratory inhalation. The pesticides in this group attack a chemical in the blood (cholinesterase) that is necessary for proper nerve functions. When this occurs nerve impulse transmission races out of control because of a build up of acetylcholine at the end of the nerve fibers. Muscle twitching becomes noticeable. Convulsions or violent muscle actions result if the tremors become intense. Additional signs of organophosphorous poisoning include: headache, giddiness, nervousness, blurred vision, dizziness, weakness, nausea, cramps, diarrhea, and chest discomfort. Other symptoms may include sweating, pin-point eye pupils, watering eyes, excess salivation, rapid heartbeat, excessive respiratory secretion and vomiting. Advanced stages of poisoning usually result in convulsions, loss of bowel control, loss of reflexes and unconsciousness. Quick action and proper medical treatment can still save persons in the advanced stages of poisoning.

c. **Carbamate Pesticides.** Includes such insecticides Aldicarb temik, Carbaryl (Sevin) and Carbofuran (Furadan); Herbicides such as Cycloate (Ro-neet), Diallate (Avadex); and such fungicides as Benomyl (Benolate) and Ferban (Fermate). The action of these compounds is very similar to that of organophosphorous compounds in that they inhibit the enzyme cholinesterase. They differ in action as the effect on cholinesterase is brief. Symptoms and signs of carbamate poisons are essentially the same as caused by organophosphorous pesticides.

d. **Chlorinated Hydrocarbon Pesticides.** These pesticides include insecticides such as DDT, Aldrin, (Aldrite) Dieldrin (Dieldrite), Endrin and Chlordane. These pesticides were used quite extensively until many of them were restricted or banned from use. Symptoms and signs of chlorinated hydrocarbon poisons are essentially the same as caused by organophosphorous and carbamate pesticides.

### **2. FIRST AID**

a. First aid cannot be substituted for medical treatment, but it can save a life until professional help arrives. When a victim has been identified as being poisoned by pesticides, call an ambulance or a doctor immediately. The only exception is when you are alone with the victim:

(1) If the victim is not breathing, administer artificial respiration and make sure the victim is not exposed to further contamination.

(2) If there is evidence that the victim has been exposed to a pesticide spill, it will be necessary to decontaminate the victim immediately. Wash area affected thoroughly.

(3) Read label for antidote.

(4) Call 911 or a physician and inform the physician what has happened, provide the contents of the pesticide, follow the physician's directions. Save any information such as pesticide label or the name of the chemical to give to the physician or ambulance personnel.



(5) If the eyes have been exposed to the poison, hold eyelids open, wash eyes with clear water for at least fifteen minutes.

(6) If poisons have been inhaled, loosen all tight fitting clothing, keep victim as quiet as possible. If poison has contaminated an enclosed space do not go in without a respirator.

(7) For swallowed poisons, read the directions on label. Do not induce vomiting if the victim is in convulsions, unconscious or if the victim has swallowed petroleum products such as gasoline, kerosene, etc.

(8) Don't expose yourself to pesticides while helping the victim.

(9) Do not use ointment, grease, powders and other remedies in first aid equipment on chemical burns.

b. Poison control centers have been established to give pertinent information on all types of poisonings. The Cemetery Director should ensure that the location and telephone number of the nearest poison control center is displayed by telephones.

## SECTION III -- PESTICIDES

### 1. BREAKDOWN OF PESTICIDES

a. Pesticides break down at different rates. In some the change occurs in hours and in others it can take days, weeks, or months. This is called a residual effect. The type of pest, disease or fungus being treated will determine if a quick kill or a longer residual is needed. Be sure you know what you are trying to control and hit the target.

b. In order to obtain better controls, sometimes two pesticides are combined to kill a pest. These may be an insect and disease infection at the same time; in this instance you can combine a fungicide and insecticide if they are compatible.

### 2. TYPES OF CHEMICAL CONTROLS

a. **Insecticides** are used to control insects. An insecticide may kill an insect by touching it or by being swallowed. There are insecticides termed as systemic, which the plant absorbs and when the insect feeds on the leaves or stem it is killed.

(1) Beneficial insects present should be considered before buying a chemical. Some chemicals can kill all they touch and others can be selective. If beneficial insects are present in large numbers, the Cemetery Director may want to delay spraying. There are times when the beneficial insects are killed and the pest you are trying to control comes back stronger because the natural predator is gone.

b. **Fungicides** are used to control fungi, which cause molds, rot and plant disease. For fungicides to work, they have to come in contact with the fungi.

c. **Miticides** are chemicals specifically used to control spider mites and ticks. The chemical has to contact the mite to be effective.

d. **Spot treatment** is used instead of spraying to protect the environment where a pest problem is more severe in a concentrated area.

e. **Herbicides** are used to control weeds or unwanted plants. There are herbicides which are non-selective and kill all plants, normally used when clearing an area of all vegetation. Selective types will usually kill either most broad-leaved plants or most grassy plants. These are useful in median strips, along walls, fences, flower and shrub beds. For example, a crabgrass herbicide will control crabgrass in a pre-emergent state, or it can be purchased to control the crabgrass in post-emergent growth. Timing in either case is essential. Pre-emergents may be used in plant beds, shrubs, and flowers prior to germination of weeds. This will provide a control for approximately six weeks. Post-emergents are applied after the weeds appear and are very selective. They will control the weeds, but leave desirable plants alone.

f. **Nematodes** are organisms that attack the roots of turf and plants which cause them to die. They are very tiny worm-like organisms and are hard to see with the naked eye. Soil fumigants or nematicides are used to control nematodes. The nematicide is usually a restricted chemical and is very dangerous to apply. It is recommended that if nematodes are identified as the problem, hire a licensed applicator to apply the controls. The State Extension Service can take soil tests to identify if the problem is nematodes.

g. **Nematodes/Steinernema** are worm-like organisms that prey on grub larva of harmful insects. These are harmless to animals, humans and plants. They enter the pest through its body openings and destroy the host. At the present time there are no known environmental side effects. These nematodes can be sprayed on a target area such as turf to treat grubs to control white grubs, root weevils, moths, caterpillars, stem borers and yellowjackets. Check with the local State Extension Service for sources and updates.

h. **Horticultural oil** sprays are popular because they have no long-term effect on beneficial colonies of most parasites or predators. Over wintering stages of mites, adelgids, aphids and scales are smothered by this spray. Good results can be obtained if sprayed just before the buds break. The oil can be used in the winter as a

dormant spray and as a summer spray for sucking insects. Do not spray oil for two weeks before using any sulfur-containing materials. Horticultural oil sprays are for outdoor use only.

i. **Horticultural soap** sprays are popular because they have no long-term effect on beneficial insects parasites or predators. These sprays kill aphids, adelgids, white flies, thrips, soft scale, mites and mealy bugs. Damage can occur to horse chestnuts, gardenias, Japanese maples, mountain ash and some annuals and perennials. Horticultural soap sprays can be used indoors as well as outdoors. Prior to use, test it on a couple of selected plants before treating a large area. Horticultural soap sprays require complete coverage for good control and are not compatible with many other chemicals.

j. **Integrated Pest Management (IPM)** is an approach to pest control that requires regular monitoring to determine if there is a pest problem. Controls normally applied are biological, mechanical, and cultural to keep pests in line. Treatments are not made according to a schedule, but are made only when and where monitoring has identified a problem. Treatments are made when controls can be most effective. It is important to determine the level of pest infestation that is acceptable. First evaluate the aesthetic and economic damage, determine how large the pest population can be, and then establish a treatment that keeps the pest population at an acceptable level.

### 3. CHEMICAL TOXICITY

a. Toxicity of chemicals are rated in LETHAL DOSE LD 50. The more toxic the pesticide, the lower the LD 50 rating. Listed below are examples of various chemicals including household items that have a high toxicity level.

#### (1) INSECTICIDE ORAL LD 50

Diazinon	300-400
Dursban	97-276
Malathion	1375

#### (2) HERBICIDES

2,4-D	375-1200
Dacthal	300

#### (3) FUNGICIDES

Captan	10,000
Zineb	5,200

#### (4) HOUSEHOLD CHEMICALS

Iodine	23
Kerosene	50
Water colors	30
Baking soda	2670
Aspirin	370
Table salt	4800

b. Pesticides should only be handled by qualified and licensed applicators who follow the guidelines set forth by the Environmental Protection Agency (EPA) and the label instructions and who are prepared for any emergency.

#### 4. PESTICIDE STORAGE

a. From the moment the Cemetery Director takes possession of a pesticide, he or she is responsible for its storage, use and disposal. Check the manufacturer's recommendations for storage.

b. Storage requirements are different in each State. Check with the local fire department, health and zoning boards for information concerning building requirements.

c. The enclosure must be built to prevent off-site drainage, must be ventilated, of flame proof material, with adequate moisture control, with concrete or pesticide impervious materials for flooring and meet appropriate Federal and State and other requirements. A spill containment pad may be required around the periphery of the building. A containment mixing pad may also be required outside the structure, to include a waste water or spill recovery sump drain.

d. Signage is very important. There must be display signs on all sides of the storage enclosure. The signs must state "DANGER: POISON STORAGE AREA" and be readable from at least 25 feet. The sign must be in English. Another language dictated by persons who come into the storage area may also be used.

e. All pesticides should be stored properly after each use. Protective clothing should be worn while cleaning the storage area and putting away the pesticides. Keep a good supply of detergents, soap, hand cleaners, water, absorptive clay, vermiculite, pet litter, or sawdust to soak up spills or leaks. Shovels, a broom, dust pan, respirator and fire extinguishers are required.


f. Pesticides must be stored out of the sun and away from other sources of heat. Some pesticides can catch on fire if they get too hot or splash when the container is opened. Herbicides should be stored apart from other pesticides. If the herbicide vaporizes, it can contaminate other pesticides and may injure plants when used. Pesticide containers should be stored with the label in plain sight. The Material Safety Data Sheet (MSDS) should be available for all chemicals stored. The containers should be checked regularly for leaks, corrosion and loose caps. Store pesticides in their original container. Do not store pesticides in anything used for food or drinks. Pesticides stored in a soda bottle, food jars or milk cartons are a cause of serious accidental poisonings. Consider setting up a monthly monitoring system, keeping records of purchase, distributor, products, etc. Provide the fire department with a list of pesticides you are storing. The storage area should be cleaned out periodically and necessary repairs made as needed.

g. Pesticide equipment should be stored in a special area. The equipment should be cleaned in the approved manner after each use and before storing.

h. Appendix A is a minimum check list for preventing pesticide spills. If there are any other safeguards you should consider, add them to the bottom of the check list and post. Appendix A, VA Form 40-0705, is a Jetform form.



# **SECTION IV -- APPENDICES** **STORAGE AND USE OF PESTICIDES QUESTIONNAIRE**

 <b>Department of Veterans Affairs</b>		<b>STORAGE AND USE OF PESTICIDES QUESTIONNAIRE</b>	
NAME OF NATIONAL CEMETERY		SIGNATURE OF CEMETERY DIRECTOR	
		DATE	
<p><b>NOTE:</b> The use of this form is required to comply with NCS Directive 3410 and NCS Handbook 3410, Pesticide Certification and Procedures. This form, when completed, will be included in the National Cemetery records as required by NCS Directive 3410, paragraph 5, Records and Reports.</p>			
<b>QUESTIONS</b>			
1. Is the storage space for pesticides adequate?		<input type="checkbox"/> YES	<input type="checkbox"/> NO
2. Are all your pesticides in one approved area?		<input type="checkbox"/> YES	<input type="checkbox"/> NO
3. Are the pesticides and herbicides kept separate?		<input type="checkbox"/> YES	<input type="checkbox"/> NO
4. Is the area securely locked and signs posted to indicate danger?		<input type="checkbox"/> YES	<input type="checkbox"/> NO
5. Are pesticides kept in original containers?		<input type="checkbox"/> YES	<input type="checkbox"/> NO
6. Are unlabeled pesticides disposed of? (An approved landfill?)		<input type="checkbox"/> YES	<input type="checkbox"/> NO
7. Are the labels read to see what protective clothing is recommended?		<input type="checkbox"/> YES	<input type="checkbox"/> NO
8. Are the signal words checked to take necessary precautions including changing clothes and washing after each handling?		<input type="checkbox"/> YES	<input type="checkbox"/> NO
9. Are items such as rubber gloves and shoes discarded when small holes appear?		<input type="checkbox"/> YES	<input type="checkbox"/> NO
10. Do you know what to do if a pesticide is spilled on you?		<input type="checkbox"/> YES	<input type="checkbox"/> NO
11. Are absorbent materials on hand in case of a spill?		<input type="checkbox"/> YES	<input type="checkbox"/> NO
12. Is there a check valve to prevent back-siphoning into the water supply?		<input type="checkbox"/> YES	<input type="checkbox"/> NO
13. Is the equipment maintained so it doesn't leak and leave toxic puddles?		<input type="checkbox"/> YES	<input type="checkbox"/> NO
14. Is the spray tank overfilled?		<input type="checkbox"/> YES	<input type="checkbox"/> NO
15. Are empty containers and equipment rinsed three times after each use?		<input type="checkbox"/> YES	<input type="checkbox"/> NO
16. Is the rinsing water disposed of appropriately?		<input type="checkbox"/> YES	<input type="checkbox"/> NO
17. Are pesticide drums disposed of in a legal way?		<input type="checkbox"/> YES	<input type="checkbox"/> NO
18. Are spray equipment and pesticides kept away from children and visitors?		<input type="checkbox"/> YES	<input type="checkbox"/> NO
19. Are wind conditions checked before applying pesticides?		<input type="checkbox"/> YES	<input type="checkbox"/> NO
20. Is the spray area checked to make sure animals, children and adults are not near?		<input type="checkbox"/> YES	<input type="checkbox"/> NO
21. Are the safest chemicals always used?		<input type="checkbox"/> YES	<input type="checkbox"/> NO
22. Do you purchase only what you can use?		<input type="checkbox"/> YES	<input type="checkbox"/> NO
23. Are biological controls used such as nematodes?		<input type="checkbox"/> YES	<input type="checkbox"/> NO
24. Is there an eye rinse available?		<input type="checkbox"/> YES	<input type="checkbox"/> NO
25. Are you mixing chemicals on a containment pad, where available?		<input type="checkbox"/> YES	<input type="checkbox"/> NO
26. Is the mixing area located away from springs and water ways to avoid contamination if a spill occurs?		<input type="checkbox"/> YES	<input type="checkbox"/> NO
27. Does the local fire department have a list of chemicals you are storing and using? (They should have.)		<input type="checkbox"/> YES	<input type="checkbox"/> NO
28. Are the Material Safety Data Sheets (MSDS) available to employees?		<input type="checkbox"/> YES	<input type="checkbox"/> NO
29. Are you keeping records of all pesticides applied, quantities, locations, wind velocity and direction, costs and dates as required by Federal and State agencies? (See NCS Directive 3410, paragraph 5, Records and Reports.)		<input type="checkbox"/> YES	<input type="checkbox"/> NO
		<input type="checkbox"/> YES	<input type="checkbox"/> NO
		<input type="checkbox"/> YES	<input type="checkbox"/> NO
SIGNATURE OF PERSON PERFORMING SURVEY/USING PESTICIDES		DATE	



### **DEFINITIONS**

**Abrasion** - A scrape, scratch, sore or cut which breaks the skin.

**Absorb** - To take a pesticide into a plant, animal, soil or a human.

**Accumulate** - Build up, store.

**Active Ingredient** - The part of the pesticide which kills the pests or prevents damage by them.

**Antidote** - A treatment to reduce the effect of pesticide poisoning.

**Application** - Applying a pesticide on a specific target.

**Artificial Respiration** - First aid for someone who has stopped breathing, by blowing air into their lungs.

**Atropine** - An antidote for organophosphate and carbamate poisoning.

**Biological Control** - Pest control without the use of chemicals.

**Broadleaf Weeds** - Plants with broad, rounded, or flattened leaves.

**Carbamate** - A synthetic organic pesticide containing carbon, hydrogen, nitrogen and sulfur.

**Carcinogenic** - Can cause cancer.

**Carrier** - The inert liquid or solid material added to an active ingredient to prepare a pesticide formulation.

**Certified applicator** - Any individual who has been issued a State certification.

**Chlorinated Hydrocarbon** - A synthetic organic pesticide that contains chlorine, carbon, and hydrogen, i.e., chlordane, lindane, methoxychlor.

**Cholinesterase** - A chemical enzyme found in animals that helps regulate the activity of nerve impulses.

**Chronic Poisoning** - Poisoning which occurs as a result of small, repeated doses of pesticide over a long period of time.

**Chronic Toxicity** - How poisonous a pesticide is to an animal (or man) after small, repeated doses over a period of time.

**Common Name** - A well-known, simple name of a pesticide accepted by the Pesticide Regulation Division of the Environmental Protection Agency. Examples: carbaryl, atrazine, benomyl.

**Compatible** - When two or more chemicals can be mixed without affecting each other's properties, they are said to be compatible.

**Concentrate** - A pesticide as it is sold, before diluting it. Usually contains a lot of the active ingredient.

**Concentration** - The amount of active ingredient of pesticide in a formulation or in a mixture.

**Control** - To reduce damage; to keep down the number of pests in an area.



**Decontaminate** - To remove or break down the unwanted material (usually pesticide) so it cannot do any harm or damage.

**Degree of Exposure** - The amount or extent to which a person has been in contact with a toxic pesticide.

**Degrade** - Breakdown, decompose.

**Deposit** - The pesticide on the leaves or skin or other surface right after a pesticide application.

**Dermal Toxicity** - How poisonous a pesticide is to an animal when absorbed through the skin.

**Dormant Spray** - Pesticide application made before trees and other plant life begin to leaf out in the spring.

**Dose, Dosage** - Quantity of a pesticide applied.

**Drift** - The movement by wind and air currents of droplets or particles of a pesticide from the target area to an area not intended to be treated.

**Emulsifier** - A chemical which helps one liquid form tiny droplets and thus remain mixed in another liquid. It is used to form a stable mixture between two liquids which usually would not mix. Example: oil in water.

**EPA Registration Number** - A number assigned by EPA to a product when it is registered that must appear on all labels for that product. It will appear as "EPA Reg. No." or "EPA Registration No." followed by the company number and product number. Sometimes a state alphabetical designation and distributors number will appear.

**Foliar Sprays** - Pesticides which are applied on the stems, leaves, needles or blades of a plant.

**Formulation** - A mixture of one or more pesticides plus other materials such as carriers, dilutents, etc., needed to make it safe and easy to store, dilute and apply. The formulation is the form the pesticide is bought in; does not include tank mixes, adjuvants, etc.

**Fungicide** - Pesticide used to control organisms which cause molds, rots, and plant diseases (fungi).

**Gas Mask** - Type of respirator which covers the entire face and protects the eyes as well as the nose and mouth. They contain better filters and more absorbing material to cleanse the air than cartridge respirators and are less likely to leak around the edges.

**Hazard** - The risk of danger; the chance that danger or harm will come to the applicator, bystanders, consumers, livestock wildlife or crops, etc.

**Herbicide** - Pesticide that is used to control unwanted plants.

**Illegal Residue** - A quantity of pesticide remaining on the crop at harvest which is either above the set tolerance or which is not allowed on the crop at all.

**Inert Ingredients** - Inactive part of a pesticide/formulation; any material in a pesticide mixture which would not prevent damage or destroy pests if used by itself.

**Infestation** - Any pests found in an area or place where they are not desirable.

**Ingest** - To eat or swallow.

**Ingredient Statement** - The part of the label on a pesticide container which gives the name and amount of each pesticide chemical and the amount of inactive material in the mixture.

**Inhalation Toxicity** - How poisonous a pesticide is to man or an animal when breathed in through the lungs.

**Insecticide** - A pesticide that is used to control or prevent damage caused by insects.

**Integrated Control** - A system in which two or more methods are used to control a pest. These methods may include cultural practices, natural enemies, and selective pesticides.

**Interval** - Period of time. The time period between two pesticide applications or between the last pesticide application and harvest.

**kg or Kilogram** - A unit of weight in the metric system equal to 2.2 pounds.

**Label** - The printed material attached to or part of a pesticide container.

**LC 50** - The concentration of a pesticide in the air which would kill half of the test animals exposed to it. The lower the LC value, the more poisonous the pesticide. It is often used as the measure of acute inhalation toxicity.

**LD 50** - The dose or amount of pesticide which would kill half of a large number of test animals if eaten or absorbed through the skin. The lower the LD value, the more poisonous the pesticide. LD values are the commonly used measure of acute oral and acute dermal toxicity.

**Lethal** - Deadly, toxic.

**Liability** - Legal responsibility for.

**Limitation** - Restriction; the most that is allowed.

**Liter** - A unit of volume in the metric system equal to a more than one quart.

**Maximum Dosage** - The largest amount of a pesticide chemical that is safe to use without resulting in excess residues or damage to whatever is being protected.

**Nematocide** - A pesticide used to control nematodes.

**Nematode** - A tiny, hair-like worm that causes damage by feeding on roots or other plant parts.

**Non-Labeled** - Use or method which is not written on the pesticide label and, therefore, is not legal.

**Non-Selective Pesticide** - A pesticide chemical that will control a wide range of pests.

**Non-Target** - Any plant, animal or other organism that a pesticide application is not aimed at, but may accidentally be injured by the chemical.

**Organism** - Any living thing; plant, animal, fungus, bacteria, insect, etc.

**Organophosphate Pesticides** - A family of pesticides which are chemically similar - they all contain phosphorous. They are generally less persistent than the chlorinated hydrocarbon family. They act by inhibiting a blood chemical called cholinesterase. Examples include malathion, Diazinon, parathion.

**Percent By Weight** - The amount of actual pesticide chemical in a mixture based on its weight compared to the weight of the whole mixture. Example: one pound of actual pesticide plus three pounds of other materials would give you a 25% pesticide by weight in the mixture.

**Pest** - An unwanted organism (animal, plant, bacteria, fungus, virus, etc.)

**Pesticide Chemical** - Term used to describe a pesticide which is a chemical rather than a parasite, virus or some other type of pest killer.

**Phytotoxicity** - Injury to plant life caused by a chemical or other agent.

**Point of Drip or Runoff** - When a spray is applied until it starts to run or drip off the ends of the leaves and down the stems of plants or off the hair or feathers of animals.

**Poison** - Any chemical or agent that can cause illness or death when eaten, absorbed through the skin, inhaled, or otherwise absorbed by man, animals, or plants.

**Post-Emergence** - After young plants push up through the soil.

**Predator** - Any animal or insect that attacks, feeds on and destroys other animals or insects. Predators are important in the food chain and some help to reduce pests which cause disease, damage or harm.

**Pre-Emergence** - The time period between planting seeds and the seedlings pushing up through the soil.

**Protective Gear** - Clothes and equipment that guard a person against injury or death when using poisonous pesticides. They would include gloves, apron, shoes, coveralls, hat, cartridge, respirator and gas mask.

**Rate** - The amount of a material which is being delivered to a plant, animal or surface. Usually measured as per acre, per 1,000 square feet or per hour.

**Recommended Dosage** - Advice from a County Agency, Extension Specialist or other authority, or written on the label, to state how much of a pesticide to use to prevent damage or to destroy a pest. This amount is not always the maximum allowed by law.

**Reentry Interval** - Period of time between a pesticide application and when workers can safely go back into an area without protective clothing.

**Registration** - Approval by the Environmental Protection Agency of a pesticide for uses as stated on its label.

**Regulatory Officials** - Those persons working for the Federal or State government who enforce the rules and laws.

**Residual Pesticide** - A pesticide that can destroy pests or keep them from causing damage for long periods of time after it is applied (days, weeks, months).

**Respirator** - A face mask which filters out poisonous gases and particles from the air so that a person can breathe and work safely.

**Restrictions** - Limitations.

**Rodenticide** - A pesticide used to control rats, mice, rabbits and their relatives.

**Selective Pesticide/Specific Pesticide** - A pesticide which will control only a few pest species and is not as poisonous to other plants and animals.

**Sensitive Areas** - Places where pesticides could cause great harm if not used with special care and caution. Examples: houses, barns, parks, ponds, streams, etc.

**Short Term Pesticide** - A pesticide which breaks down almost immediately after application into non-toxic by-products.

**Signal Word** - Word which must appear on pesticide labels to show how toxic the pesticide is. The signal words used are "Danger-Poison" or "Warning" or "Caution."

**Stage of Development** - Time period during the growth from newborn or egg to adulthood. Example: an insect goes through many changes from egg to adult - any one of these changes is a stage of development.

**Surfactant** - A chemical or agent used in a pesticide formulation to make mixing easier and help the material to spread over and completely wet the surface to be sprayed. Examples: detergent, emulsifier, wetting agent.

**Susceptible** - Can be killed or injured by the pesticide at the rates used.

**Symptom** - A warning that something is wrong. An outward signal of a disease or poisoning in a plant or animal or man.

**Systemic** - A pesticide that is taken up by one part of a plant or animal and moved to another section where it acts against a pest.

**Target** - The area, buildings, plants, animals, or pests intended to be treated with a pesticide application.

**Toxic** - Poisonous, deadly, injurious to plants, animals or humans.

**Toxicant** - A poison. The chemical in a pesticide formulation that can injure or kill the pest as well as humans, animals or plants.

**Trade Name** - A brand name. The name given to a pesticide by a manufacturing company to identify it as their product.

**Unauthorized Persons** - People who have no right doing something because they have not been told or trained to do it.

**Underground Water** - Waterways which are located beneath the soil surface from which wells get their water.

**Victim** - Someone who is injured, poisoned or hurt in any way.



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